English Language Proficiency and Core Content Standards: Linking Documents for the Instruction of English Language Learners

Mathematics

Michigan Mathematics Linking Document to English Language Proficiency Levels

Kindergarten Math Strands	**Basic ELP Level 1A**	**Basic ELP Level 1B**	**Low Intermediate ELP Level 2**	**High Intermediate ELP Level 3**	**Proficient ELP Level 4**
1. Numbers & Operations	Observe teacher demonstration of one-to-one correspondence counting up to 30 Repeat numbers and simple counting Copy simple patterns using manipulatives Observe teacher demonstration of simple addition and subtraction models	Repeat numbers in counting to 30 using manipulatives Recognize and copy simple patterns Copy simple addition and subtraction models	Count, write and order numbers up to 30 with assistance and teacher model Use one-to-one correspondence to count numbers Create simple addition and subtraction models using manipulatives Create and describe simple number patterns	Count, write and order numbers up to 30 Use one-to-one correspondence to compare and order numbers Compose and decompose numbers Add and Subtract numbers in simple sentences Create, describe and extend simple number patterns	Count, write and order numbers up to 30 Use one-to-one correspondence to compare and order numbers Compose and decompose numbers Add and subtract numbers in simple sentences Create, describe, and extend simple number patterns
2. Measurement	Repeat common words for parts of day and time Visually recognize common tools for measuring Observe landmark times Observe	Repeat and recognize common words for parts of day and time Recognize common tools for measuring Recognize landmark times Observe and participate with assistance in measurement	Know common words for parts of day and time Recognize common tools for measuring Recognize landmark times Observe and compare	Know common words for parts of day and time Know and recognize common tools for measuring Identify landmark times such as lunchtime, bedtime, etc.	Know and use common words for parts of day and time Know and recognize tools for measuring time Identify landmark times such as lunchtime and bedtime

	measurement demonstrations	demonstrations	measurements	Explore and compare measurements	Explore and compare measurements
3. Geometry	Observe and explore objects and location of objects Observe and copy simple geometric patterns	Observe, explore and relate objects to geometric names Repeat names of objects Copy simple geometric patterns	Recognize shapes and relate them to real life objects outside of classroom Sort, identify and classify objects by copying models and visual representations of objects Copy and create simple geometric patterns	Relate shapes and relate them to real life objects outside of classroom Identify, sort and classify objects by attribute Identify which object does not belong in a group Create, copy and describe simple geometric patterns	Relate shapes and relate them to real life objects outside of classroom Identify, sort and classify objects by attribute Identify which object does not belong in a group Create, copy and describe and extend simple geometric patterns

Michigan Mathematics Linking Document to English Language Proficiency Levels

1st Grade Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
1. Numbers & Operations	Copies numbers Observe and copy models of addition and subtraction of whole numbers using manipulatives	Repeat and copies numbers with verbal cues Copy numbers Use manipulatives to recreate place value models Recreate teacher model of addition and subtraction using manipulatives	Count, write, and order basic set of whole numbers use manipulatives to explore place value model basic addition and subtraction using manipulatives	Count, write and order numbers Uses manipulatives to explore place value Add and subtract basic whole number facts	Count, write and order numbers Compose and decompose numbers Add and subtract whole numbers
2. Measurement	Observes measurement of length Copies teacher modeling of telling time using manipulatives Selects appropriate coins and bills using manipulatives	Follows teacher directions for measurement of length Copies and reproduces time on a 12 hour clock Recognizes coins and bills	Measure realia and use simple vocabulary to represent length Copies and reproduces time on a 12 hour clock Recognizes coins and bills	Measure realia and use simple vocabulary to represent length Copies and reproduces time on a 12 hour clock Names coins and bills	Measure and compare the length of objects Tells time on a 12 hour clock Works with money Solves one-step problems involving measurement
3. Geometry	Observe and recognize visually shapes Observe patterns	Copy and recreate models of two dimensional shapes Copy patterns	Label and copy two dimensional shapes Copy patterns	Create common two dimensional shapes Describes and predicts patterns	Create common two dimensional shapes Describes and predicts patterns

	and copy basic patterns				
4. Data and Probability	Observe creation of pictographs	Copy pictographs	Copy and create pictographs	Create, use and read pictographs	Create, use, read and interpret pictographs

Michigan Mathematics Linking Document to English Language Proficiency Levels

2nd Grade Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
1. Numbers & Operations	Repeat numbers and differentiate between numbers and letters Repeat place value terms (hundreds, tens, ones) Copy models of addition and subtraction of whole numbers using manipulatives Observes, copies and reproduces teacher model of multiplication and division Observe, copies and reproduces teacher model of fractions	Repeat numbers and create models of numbers with verbal cues Repeat and recognize place terms on charts and illustrations Use manipulatives to demonstrate place value (hundreds, tens, one) Model and use simple phrases to explain addition and subtraction Copy teacher models of array to demonstrate multiplication Copy teacher model of fractions, visualize and verbalize basic fractions,	Count, write and order basic set of whole numbers Use place value terms to label numbers and understand magnitude of number Model, explain in common mathematical structures and record addition and subtraction Represent real life situation with objects, words and symbols Identify common fractions in authentic materials, use manipulatives to represent common fractions	Count, write and order a wider range of whole numbers Use manipulatives to demonstrate place value concepts (hundreds, tens, ones) Model, solve problems, explain in words, and record using numbers and symbols addition and subtraction Write and express examples of multiplication and division Use manipulatives to demonstrate common fractions,	Count, write, an order whole numbers Express through use of concrete materials and verbally demonstrate knowledge of place value Model, solve problems, explain and record addition and subtraction of whole numbers Write, express orally, and create models of multiplication and division Recognize, name and represent common fractions

2. Measurement	Observe teacher demonstration of measurement of length, area, and temperature	Use manipulatives to copy teacher demonstration of measurement of length, area, and temperature	Measure realia, use simple vocabulary to represent length, length, area and temperature		Measure, express and write length, area, and temperature
3. Geometry	Explore and recognize two-dimensional and three-dimensional shapes	Use manipulatives to identify two and three dimensional shapes	Label and classify orally two and three dimensional shapes	Classify, distinguish, and compare two and three dimensional shapes	Classify, distinguish, compare and recognize in a variety of real life situations, two and three dimensional shapes
4. Data and Probability	Observe pictographs	Observe and visually recognize pictographs	Copy teacher models of pictographs with scales	Read and interpret pictographs	Apply concept of pictographs and use information to solve problems

Michigan Mathematics Linking Document to English Language Proficiency Levels

3rd Grade Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
1. Numbers & Operations	Repeat numbers Repeat place value terms (thousands, ten thousands, hundreds, tens, ones) Repeat even and odd numbers Recognize and copy mathematical symbols (add, subtract, multiply and divide) Recognize fractions and numbers with decimals	Repeat orally numbers Repeat and recognize place terms Use manipulatives to explain addition, subtraction, multiplication and division Demonstrate fractions with manipulatives Copy teacher models of array to demonstrate multiplication Copy teacher model of fractions, visualize and verbalize basic fractions	Write and recognize numbers and basic number patterns Estimate sums and differences of two numbers Use place value terms to label numbers and understand magnitude of number Model, explain in common mathematical structures and record addition, subtraction, multiplication and division Recognize and recall basic decimal fractions in relation to money. Identify fractions and related vocabulary.	Count write and order numbers Count in steps and understand odd and even numbers Add and subtract whole numbers Understand and recognize fact families to express multiplication statements Understand simple fractions, relate fractions to the whole Recognize addition and subtraction of fractions	Apply number sense and place value terms to whole numbers multiples of two Solve problems using addition, subtraction, multiplication and division Understand and relate simple fractions and relate fractions to the whole Understand simple decimal fractions in relation to money

3rd Grade Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
2. Measurement	Observe teacher demonstration of measurement and use of units for length, weight, temperature, and time	Use manipulatives to copy teacher demonstration of measurement of length, weight, temperature, and time	Apply and demonstrate measurements in real life situations for length, weight, temperature and time	Explain and demonstrate understanding of mixed units of measurement within the same measurement system	Know and use common units of measurements in a variety of settings to solve problems Demonstrate an understanding of the appropriate standard unit measurement Understand meaning of area and perimeter and apply in problems
3. Geometry	Explore and recognize two-dimensional and three-dimensional shapes, lines and faces	Use manipulatives to identify two and three dimensional shapes, lines and faces Draw two and three dimensional shapes, lines and faces	Label and classify orally two and three dimensional shapes, lines and faces	Describe, label, compare, classify and explain, two and three dimensional shapes, lines	Distinguish, compare and recognize in a variety of real life situations, two and three dimensional shapes Build and create two and three dimensional shapes and lines
4. Data and Probability	Observe bar graphs	Observe and visually recognize bar graphs	Copy teacher models of bar graphs with scales	Read and interpret bar graphs	Apply concept of bar graphs and use information to solve problems

Michigan Mathematics Linking Document to English Language Proficiency Levels

4th Grade Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
1. Numbers & Operations	Repeat numbers Repeat place value terms (thousands, ten thousands, hundreds, tens, ones) Repeat even and odd numbers Recognize and copy mathematical symbols (add, subtract, multiply and divide) Recognize fractions and numbers with decimals	Repeat orally numbers Repeat and recognize place terms Use manipulatives to explain addition, subtraction, multiplication and division Demonstrate fractions with manipulatives Copy teacher models of array to demonstrate multiplication and division Copy teacher model of fractions, visualize and verbalize basic fractions	Write and recognize numbers and basic number patterns Estimate sums and differences of two numbers using manipulatives Write simple expressions of addition, subtraction, multiplication, and division Follow teacher directions to locate fractions on a number lines Recognize and observe and the relationship among fractions and decimals.	Understand and use numbers and place value Add, subtract, divide and multiply whole numbers Understand and create models of simple fractions Recognize and compare whole numbers to improper fractions and mixed numbers	Apply number sense to compose and decompose numbers Solve problems using addition, subtraction, multiplication and division write, compare and order fractions, whole numbers, mixed numbers and improper fractions solve addition, subtraction, multiplication, and division problems with fractions or decimals

2. Measurement	Observe teacher demonstration of measurements Observe and reproduce right angles	Follows teacher directions for measurement Recalls and identifies right angles visually Observe teacher demonstration for finding area and perimeter	Apply and demonstrate use of appropriate units of measurement given specific contextual situations	Explain and demonstrate understanding of mixed units of measurement within the same measurement system Relates formulas for area and perimeter to solve contextual problems Identifies and compares right angles	Measure using common tools and appropriate units Understand the relationship between different units of measure Knows and understands the formulas for perimeter and area Understands right angles
3. Geometry	Observes teacher modeling of basic and their components, lines and their attributes, symmetry and transformations	Follows teacher modeling of basic and their components, lines and their attributes, symmetry and transformations	Reproduce basic shapes and their components Use shape components to solve problems Identify and draw line Recognize symmetry and transformations	Recognize basic shapes and their components Use shape components to solve problems Identify and draw line Recognize symmetry and transformations	Identify and use basic shapes and their components to solve problems. Identify and draw lines Recognize symmetry and transformations
4. Data and Probability	Observe bar graphs and tables	Observe and reproduce teacher models of bar graphs and tables	Copy teacher models of bar graphs and tables Analyze relationships presented on tables and bar graphs and make inferences	Create tables and bar graphs from given data Solve problems using data, bar graphs and tables	Create tables and bar graphs from given data Solve problems using data, bar graphs and tables

Michigan Mathematics Linking Document to English Language Proficiency Levels

5th Grade Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
1. Numbers & Operations	Uses manipulatives to copy addition, subtraction of fractions and whole numbers Copy models of fractions and decimals Copy teacher model of fractions, visualize and verbalize basic fractions Observe teacher modeling of relationship between fractions and decimals	Uses manipulatives to explain addition, subtraction of fractions and whole numbers Copy models of fractions and decimals Copy teacher model of fractions, visualize and verbalize basic fractions Observe teacher modeling of relationship between fractions and decimals	Understands and uses whole numbers in simple addition, subtraction, multiplication, and division problems Create models of fractions and decimals Recognize and observe and the relationship between fractions and decimals.	Understands and solves problems with whole numbers using division and multiplication Understands meaning of fractions as a result of a division problem Uses numbers with decimals and percentages	Understands and solves problems with whole numbers using division and multiplication Understands meaning of fractions as a result of a division problem Uses numbers with decimals and percentages

2. Measurement	Follow teacher demonstration of measurement and use of manipulatives	Follows teacher directions for measurement Observe and reproduce teacher demonstration of measurement system	Recognize the units of measure within a given system	Know measurement units within a given system Convert measurements within a given system Use formulas to find area of geometric shapes Understands concept of volume and solves applied problems	Know measurement units within a given system Convert measurements within a given system Use formulas to find area of geometric shapes Understands concept of volume and solves applied problems
3. Geometry	Label and copy angles Measure and classify angles while being modeled by teacher	Reproduce and measure angles Follow teacher modeling and label angles	Reproduce and measure angles Follow teacher modeling and label angles	Measures angles and understands their meaning Solves problems related to shapes and their components	Measures angles and understands their meaning Solves problems related to shapes and their components
4. Data and Probability	Observe and reproduce teacher models of line graphs	Observe and reproduce teacher models of line graphs	Observe and reproduce teacher models of line graphs	Construct and interpret line graphs Use data to interpret mean and mode	Construct and interpret line graphs Use data to interpret mean and mode

Michigan Mathematics Linking Document to English Language Proficiency Levels

6th Grade Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
1. Numbers & Operations	Observe and follow teacher modeling of multiplying and dividing fractions and decimals, copy number lines, Copy problems with decimals, copy mathematical statements	Observe and participate during teacher demonstrations of multiplying and dividing fractions and decimals, copy mathematical statements, copy problems with decimals, copy location of numbers on a number line	Apply and demonstrate knowledge of fractions and decimals, write mathematical statements, multiply and divide fractions, copy and solve problems with decimals, follow teacher modeling of locating numbers on a number line, copy numbers in scientific notation	Multiply and divide fractions, write mathematical statements, write rational numbers as fractions or decimals, add and subtract integers and rational numbers, find equivalent ratios, solve and calculate problems using decimals, percentages, and rational numbers, use exponents, express numbers in scientific notation, locate numbers on a number line	Multiply and divide fractions, write mathematical statements, write rational numbers as fractions or decimals, add and subtract integers and rational numbers, find equivalent ratios, solve and calculate problems using decimals, percentages, and rational numbers, use exponents, express numbers in scientific notation, locate numbers on a number line
2. Algebra	Observe and follow teacher directions for calculating rates, plotting coordinates, finding unknown variables, repeats verbal descriptions of algebraic formulas	Observe, recall and follow teacher directions for calculating rates, plotting on coordinate planes, finding unknown variables, repeat verbal descriptions of algebraic formulas,	Applies and demonstrates basic formulas for algebra, plot and understand coordinate planes, use variables to represent quantities, copy and solve algebraic expressions and equations, verbally describe	Apply formulas to solve problems involving rates, use and understand coordinate planes, write expressions and equations, solve equations using basic algebraic equations with variables, verbally describe	Solve problems involving rates, use and understand coordinate planes, write expressions and equations, solve equations using basic algebraic equations with variables, verbally describe formulas and

			basic algebraic formulas,	formulas and equations,	equations,
3. Measurement	Observes basic systems of measurement, observes computation of finding surface areas and volume	Observes and follows teacher modeling of measurement systems, identifies patterns for creating cubes and rectangular prisms,	Applies and demonstrates basic measurement and conversion within a measurement system, draws patterns of surface area using manipulatives,	Relates formulas for finding surface area and volume to draw patterns, explain and demonstrate understanding of measurement within a single measurement system	Convert basic units of measurement within a single measurement system, apply formulas to compute and find volume and surface area,
4. Geometry	Observes teacher modeling of basic properties of lines, angles, triangles, observes and recognizes congruence and basic transformations, observes teacher modeling of construction of basic geometric shapes	Follows teacher modeling of basic properties of lines and angels, lines, and triangles, including models of congruence and basic transformations, Observes and reproduces teacher construction of basic geometric shapes	Locate and label geometric properties, lines, angels, identify and draw congruence and transformations, use manipulatives to reproduce basic shapes	Understand basic geometric properties of lines, angles, and triangles, demonstrate basic understanding congruence and transformations, construct basic shapes using manipulatives and paper	Understand and apply basic geometric properties of lines, angles, and triangles, understand congruence and transformations, construct basic shapes using manipulatives and paper
5. Data and Probability	Observe teacher modeling of fractions, decimals, and percentages in events of probability	Observe and copy teacher examples of events of probability	Observe and reproduce samples of probability, Discuss, predict possible outcomes	Predict, calculate, compute possible outcomes of probability using for simple experiments using manipulatives	Express, calculate, predict probability using fractions, decimals, and percentages

Michigan Mathematics Linking Document to English Language Proficiency Levels

7th Grade Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
1. Numbers & Operations	Observe and follow teacher demonstration of solving for square and cube root, observe calculations and solving of positive and negative numbers	Observe and recall formulas for solving square and cube root, observe concepts of addition, subtraction, multiplication, and division of positive and negative numbers	Apply formulas for solving square and cube root, apply concepts of addition, subtraction, multiplication, and division of positive and negative numbers	Solve, calculate, and estimate problems involving derived quantities, ratios, rates and proportions, understand concepts of square and cube root, compute rational numbers,	Solve, calculate, and estimate problems involving derived quantities, involving ratios, rates, and proportions, understand concepts such as square root, and cube root, compute rational numbers,
2. Algebra	Observes and follows algebraic instruction as demonstrated by teacher,	Observes and recalls algebraic instruction as demonstrated by teacher,	Understands and constructs meaning, from basic algebraic concepts including oral, written and graphic information in order to solve problems as guided by teacher,	Understands linear relationships and applies relationship of equations to graphs as well as tables, applies basic properties of real numbers, calculates and represents linear functions, combines algebraic expressions and solves equations, understands and solves problems about inversely proportional relationships	Understands linear relationships and applies relationship of equations to graphs as well as tables, applies basic properties of real numbers, calculates and represents linear functions, combines algebraic expressions and solves equations, understands and solves problems about inversely proportional relationships

3. Geometry	Observe construction of geometric objects, use ruler and other tools to copy construction of objects, observe scale teacher modeling of scale drawings and related figures	Observe and copy construction of geometric objects using ruler and other tools, follow demonstration of scale drawings and related figures	Copy and reconstruct geometric objects using ruler and other tools, follow and demonstrate understanding of related figures and scale drawings,	Draw and construct geometric objects using ruler and tools, solve problems related to similar figures and scale drawings, understand geometric concepts of polygons, solve related problems	Draw and construct geometric objects using ruler and tools, solve problems related to similar figures and scale drawings, understand geometric concepts of polygons, solve related problems
4. Data and Probability	Observe and follow teacher modeling of creating graphs, observe use of data to calculate median, quartiles and interquartile ranges	Observe and copy circle graphs and leaf plots, histograms, and box-and –whisker plots, recreate plots, observe teacher demonstration of using formulas to calculate data and finding median, quartiles, and interquartile ranges	Copy circle graphs and leaf plots, histograms, and box-and –whisker plots, recreate plots, calculate data, apply formulas for finding median, quartiles, and interquartile range of given data	Create circle graphs, stems and leaf plots, histograms, and box-and –whisker plots, create and interpret plots, calculate and interpret data, find median, quartiles, and interquartile range of given data	Create circle graphs, stems and leaf plots, histograms, and box-and –whisker plots, create and interpret plots, calculate and interpret data, find median, quartiles, and interquartile range of given data

Michigan Mathematics Linking Document to English Language Proficiency Levels

8th Grade Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
1. Numbers & Operations	Observe and follow teacher demonstrated problem solving of number concepts	Observe and recall number concepts for the use of problem solving as guided by teacher	Understand concepts of real numbers, square root, cube root, zero and negative numbers to solve problems with teacher guidance	Understand and apply concepts of real numbers, square root, cube root, zero and negative numbers, solve problems using calculators which include these number concepts,	Recall, understand and apply concepts of real numbers, square root, cube root, zero and negative numbers, solve problems using calculators including these number concepts,
2. Algebra	Observe teacher demonstration and use of common algebraic formulas and follow	Observe and copy teacher demonstration and use of common algebraic formulas	Copy and use common algebraic formulas, with teacher guidance to solve problems which include linear functions, quadratic functions, inverse functions, cubic, roots, and exponentials,	Recall and use common algebraic formulas to solve and justify problems which include linear functions, quadratic functions, inverse functions, cubic, roots, and exponentials,	Recall, understand and apply common algebraic formulas to solve and justify problems including linear functions, quadratic functions, inverse functions, cubic, roots, and exponentials,
3. Geometry	Observe demonstration of the Pythagorean Theorem, copy representational geometric solids, follow and copy demonstrations of transformation and symmetry	Observe and copy the Pythagorean Theorem, label and copy representational geometric solids, copy formulas for finding volume and surface area, copy and observe concepts of transformation and symmetry	Copy and use the Pythagorean Theorem, draw geometric solids, use concepts of transformation and symmetry, use given formulas for finding surface area and volume	Recall and use the Pythagorean Theorem, sketch geometric solids, recall and use formulas for finding surface area and volume, recall and use concepts of transformation and symmetry	Recall, understand and apply the Pythagorean Theorem, use formulas and solve for surface area and volume, sketch geometric solids, apply understanding of symmetry and transformation

4. Data and Probability	Observe and follow use of data through teacher demonstration, observe the relationship between a data set and experiments I, involving probability,	Observe and recognize use of data, observe and copy data sets and experiments involving probability,	Copy and use a data set to answer questions, observe the relationship between probability and a data set as guided by teacher,	Use a data set to answer questions and explain results, understand probability and experiments involving chance,	Understand, apply and justify conclusions based on a data set, compute, calculate and interpret data from tables and probability experiments,

Michigan Mathematics Linking Document to English Language Proficiency Levels

9th – 12th grades Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
Strand 1: Quantitative Literacy and Logic					
Standard: L1: *Reasoning about Numbers, Systems, and Quantitative Situations*	Observe and copy number systems and representations of their relationships using mathematical symbols	Repeat and recreate teacher model of number systems and representations of their relationships using mathematical symbols	Recognize and represent basic number systems and representations of their relationships using mathematical symbols and graphic organizers with teacher guidance	Understand, apply, and describe numbers, number systems, counting techniques and interpret basic relationships from these representations	Understand and Reason about numbers, number systems and the relationship between them. Represent and interpret quantitative relationships using mathematical symbols.
Standard L2: *Calculation, Algorithms, and Estimation*	Copy and observe teacher model of calculations using real and complex numbers, sequences and iteration	Repeat and recreate teacher model of calculations using real and complex numbers, sequences and iteration	Copy and use real and complex numbers, calculate basic weighted averages, exponential expressions, relate rules of logarithms	Recall, understand and apply calculations using real and complex numbers, calculate weighted averages, exponential expressions, numerical expressions involving exponents and roots, understand basic ideas of iteration and algorithm.	Calculate fluently, estimate proficiently, describe and apply algorithm in appropriate situations. Understand basic ideas of iteration and algorithm.

Standard L3: *Measurement and Precision*	Copy and observe teacher models of units of measurement and error analysis	Observe and copy models of units of measurement and error analysis	Copy and apply units of measurement, logarithmic relationships, and convert basic units of measurement within and between systems	Converts basic units of measurement within and between systems, explains arithmetic operations, understand and use logarithmic relationships in contexts of scales, understand accuracy and percentage of error in applied situations	Apply measurement units, calculations and scales Understand ,applies, and recognizes concept of accumulated error in applied situations

9th – 12th grades Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
STRAND 2: ALGEBRA AND FUNCTIONS					
Standard A1: *Expressions, Equations and Inequalities*	Observe and copy teacher model of expressions, equations and inequalities	Observe and copy teacher model of expressions, equations and inequalities.	Recreate and recall expressions, equations and inequalities as presented by teacher,	Know, construct, and write expressions, linear, quadratic, polynomial, rational, power, exponential, logarithmic, and trigonometric write, solve and know equations such as linear, quadratic, polynomial, rational, power, exponential, logarithmic and trigonometric	Know, construct and give verbal descriptions of expressions, linear, quadratic, polynomial, rational, power, exponential, logarithmic, and trigonometric write, solve and know equations such as linear, quadratic, polynomial, rational, power, exponential, logarithmic and trigonometric
Standard A2: *Functions*	Observe and copy teacher model of functions, their representations and attributes, observe transformations and characteristics of each family.	Observe and copy teacher model of functions, their representations and attributes, observe transformations and characteristics of each family.	Recreate and recall functions their representations and attributes, perform transformations and know characteristics of each family	Understand, compose, transform and work with basic functions, know the basic characteristics of each family, identify basic functions.	understand, compose, transform, and work with functions, know the characteristics of each family, identify functions,
Standard A3 *Mathematical Modeling*	Observe and listen to real-world situations	Observe and listen to real-world situations using	Recognize and recall knowledge of families of	Construct and select models of real-world situations using	Construct and select models of real-world situations using families and functions

	using families and functions to solve applied problems.	families and functions to solve applied problems	functions to solve real-world situations in applied problems	families and functions to solve applied problems	to solve applied problems

9th – 12th grades Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
STRAND 3: GEOMETRY AND TRIGONOMETRY					
Standard G1: *Figures and their properties*	Observe, draw and copy basic geometric figures, copy formulas	Observe, draw and visualize basic geometric figures, reproduce and recreate geometric figures,	Solve basic geometric problems when given formulas, label basic geometric figures, Recognize basic properties of common two and three dimensional figures	Create basic geometric figures, polygons, conic sections, apply definitions and properties in solving problems, sketch three-dimensional figures, understand and apply concept of volume and surface area, know and apply properties of common two and three-dimensional figures	Create basic geometric figures, polygons, conic sections, apply definitions and properties in solving problems and justifying arguments, represent three-dimensional figures, understand and apply concept of volume and surface area, know and apply properties of common two and three-dimensional figures
Standard G2: *Relationships between figures*	Observe and listen to demonstrations of relationships between area and volume, 2 and 3 dimensional representations,	Observe, copy and sketch teacher models of relationships between area and volume, 2 and 3 dimensional	Recognize formulas for volume and surface area, basically demonstrate relationships between 2 and 3	Know and demonstrate relationships between area and volume formulas of 2 and 3 dimensional figures	Use and justify relationships between lines, angles, area and volume formulas and 2- and 3-dimensional

	congruence and similarity	representations, congruence and similarity	dimensional figures given formulas	Identify or sketch 2 and 3 dimensional figures, solve problems and provide proofs about congruence and similarity	representations, solve problems and provide proofs about congruence and similarity
Standard G3: *Transformations of Figures in the Planes*	Observe and listen to teacher modeling of transformations,	Observe and listen to teacher modeling of transformations,	Copy and recreate using manipulatives, interpret relationships in applied contexts, transformations and isometries and dilations	Solve problems about distance-preserving transformations and shape-preserving transformations, describe synthetically by analytic expressions in coordinates, provide definitions for isometries and dilations	Solve problems about distance-preserving transformations and shape-preserving transformations, describe synthetically by analytic expressions in coordinates, provide definitions for isometries and dilations

9th – 12th grades Math Strands	Basic ELP Level 1A	Basic ELP Level 1B	Low Intermediate ELP Level 2	High Intermediate ELP Level 3	Proficient ELP Level 4
STRAND 4: STATISTICS AND PROBABILITY					
Standard S1: *Univariate Data--- Examining Distributions*	Observe and listen to teacher demonstration of construction of dot plots, observe calculations of center	Observe and listen to teacher demonstration of construction of dot plots, observe calculations of center	Copy and recreate data using manipulatives and with teacher direction and guidance	Create and analyze data, find commonly used measures of center and variation, use properties of normal distribution	Plot and analyze univariate data, find and interpret commonly-used measures of center and variation, explain and use properties of normal distribution
Standard S2: *Bivariate Data— Examining Relationships*	Observe and listen to teacher demonstration	Observe and listen to teacher demonstration	Copy and recreate teacher models of scatter plots, recognize correlations with guidance, indentify simple patterns	Plot bivariate data, construct scatter plots, recognize linear and non-linear patterns, fit and interpret regression models	Plot and interpret bivariate data, construct scatter plots, recognize linear and non-linear patterns, interpret correlation coefficients, fit and interpret regression models,
Standard S3: *Samples, surveys, and experiments*	Observe sampling methods and experiments	Observe sampling methods and experiments,	Copy, recreate and follow directions for sampling methods, learn strategies to minimize bias,	Understand and apply sampling methods, examine surveys and experiments, identify bias, learn strategies to minimize bias, understand basic principles of experimental design	Understand and apply sampling methods, examine surveys and experiments, identify bias, learn strategies to minimize bias, understand basic principles of experimental design
Standard S4: *Probability Models and*	Observe probability models and	Observe probability models and calculations as	Compute basic probability situations,	Understand and find probability, apply concepts of	Understand and find probability, apply concepts of probability

Probability Calculation	calculations as presented by teacher	presented by teacher	calculate with direction probabilities in various situations	probability	